

What Happens to Waste?

Read the text and answer the questions.

When you throw an empty cereal box into the trash, it becomes waste. Waste is anything that is thrown away and not used. When people create goods from natural resources, any unwanted or unused parts are called waste. For example, when coal is burned to produce electricity, most of the coal is used up, but the ash and smoke produced is considered waste.

Most of the waste from your home is called trash or garbage. Common types of garbage include food, plastics, glass, metals, and paper products. Waste from your home most likely ends up in a landfill, which is a large pit where garbage is dumped and buried under the soil.

You might never see the cereal box you threw away again, but it does not just disappear. Waste builds up in our environment. Too much waste in the environment can affect the land, air, water, and food supply. Waste is a problem that everyone faces. We cannot stop all waste, but everyone can help make less waste!

1. A. Define waste by giving a synonym, antonym, and example.
B. What is the relationship between natural resources and waste?
C. List 10 everyday items that get thrown away as waste.
2. Use the text to correct each of these incorrect statements:
A. When you throw something away, it disappears forever.
B. Waste is not a problem I can help fix.
C. People cannot control how much waste is produced.
3. Create a table listing EVERYTHING you threw away as garbage yesterday. (Or, do it tomorrow and keep track throughout the day.) Organize your garbage into these categories on a separate sheet.

Plastic	Glass	Paper	Metal	Food

- A. Add up the number of items in each column. Which column had the most items? Which column had the least?
- B. Compare your table with your classmates' tables. As a class, discuss what habits you can change to create less waste.

Conservation of Resources

Read the text and complete the graphic organizer.

Conservation means saving or reusing resources so that resources will be available for the future. Governments create conservation laws to limit how people use certain resources. Companies and individual people can help conserve resources by reducing, reusing, and recycling.

Reduce A great way to conserve resources is by using fewer resources. Using fewer resources means less waste and garbage. You can reduce your water use by tightening the faucet so it does not drip. You can reduce your electricity use by turning off lights when you leave a room. And, you can reduce the amount of paper you use by always using both sides of each sheet.

Reuse Another way to conserve resources is by using materials more than once. That way, you reduce the amount of new products you buy, and produce less waste. A gift bag can be used several times before throwing it away. Many items can be reused for new purposes after they are used for their original purpose. A shoebox makes a great storage container!

Recycle A way to reduce waste and save resources is by recycling. Recycling is the process of changing waste material, like plastic, paper, and metal trash, into usable material. The aluminum used to make aluminum cans can be recycled into new sheets of aluminum. These sheets of aluminum can then be used to make more aluminum cans. That way, less cans end up in landfills, and less aluminum has to be mined from the Earth. Recycling one aluminum can saves enough energy to run a TV for 3 hours!

What is Conservation?

Explain

Explain

Explain

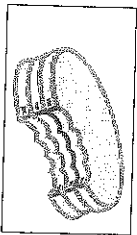
What Can I Do?

COOKIE MINING

Name: _____

Date: _____

Period: _____



Coal mining can be a very lucrative industry, but just like anything, there is a price that comes with making money. Unfortunately in this situation, Earth pays the ultimate price. During this activity, you will begin to realize the expenses accrued during an operation such as coal mining. Making you aware of the expenses as well as the damage done to the Earth, hopefully, will help you realize the extent in which we need to treat the Earth well. Follow the steps below to find out if it is all worth it?

Rules:

1. You may NOT use your fingers to hold the cookie. The only things that can touch the cookie are "mining tools" and the paper on which the cookie is sitting.
2. You are allowed a maximum of 8 minutes, which will be kept by Ms. Warren, to mine your cookie. If you should finish mining before the 8 minutes are used up, you will only record your actual time spent mining.
3. You can purchase as many mining tools as desired, but it will cost you.
4. If your mining tool breaks, it is no longer usable and a new tool must be purchased.
5. Your goal, as a business, is to make money by the end of all calculations.

Procedures:

1. You start out with \$19.00.
2. You must buy your own "mining property," which is a cookie. Only one "mining property" per player. Cookies cost:
Chips Ahoy - \$5.00
3. After you purchase the cookie, place the cookie on the grid paper and, using a pencil, trace the outline of the cookie. Then count each square that falls inside the circle. Count partial squares as a full square.
4. Now, you must buy your own "mining equipment." More than one piece of equipment may be purchased. Equipment CANNOT be shared amongst your classmates and mining equipment CANNOT be returned for a refund. Mining equipment costs:
Round toothpick - \$4.00
5. Mining costs \$1.00 per minute.
6. The sale of one chocolate chip mined from a cookie results in a \$2.00 profit. (Broken chocolate chips can be combined to make one whole chip.)
7. After the cookie has been "mined," the cookie should be placed back into the circled area on the grid paper (reclamation). Remember, this can only be accomplished using the mining tools - no fingers or hands allowed. Reclamation costs are \$1.00 for each square uncovered in the original circle.

COOKING MINING COSTS

A. Mining start-up funds

\$19 A

B. Land Purchase Costs = price of cookie

\$5 B

C. Size of Mine = size of cookie
(squares covered on grid before mining-used for reclamation)

77 squares C

D. Equipment Costs
of round toothpicks 22 X \$4.00 =

\$8.00 D

E. Mining/Excavation Costs = chip removal
of minutes 6 X \$1.00 =

\$6.00 E

F. Minerals Mined
of chips mined 12 X \$2.00 =

\$24 gross profit F

G. Reclamation
of squares no longer covered 10 X \$1.00 =

\$10 G

H. Profit/Loss

Start-up funds (A) = \$ (A)

Total Mining Costs (B+D+E) = \$ (I)

Total Reclamation Costs (G) = \$ (G)

Total Gross Profit (F) = \$ (F)

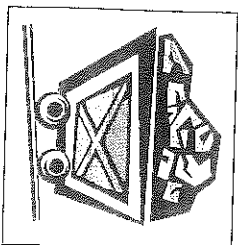
Did you make a profit?

\$ (A) + \$ (F) = \$ (J)

\$ (I) - \$ (J) = \$ (K)

\$ (K) - \$ (G) = \$ (M)

Total Profit or Loss: \$ (M)



What Are Natural Resources?

Read the text and answer the questions.

Look outside and you will see plants and animals that are living. Other things like rocks, water, and sunlight are not living. Together, all living and non-living things make up the Earth's natural resources. Natural resources are materials taken directly from the Earth's environment that can be used to support life or to meet people's needs.

Natural resources are essential for life on Earth. Plants need natural resources like water, sunlight, air, and minerals from the earth to grow. People and animals need resources, too, like air, water, shelter, and sources of food to survive.

However, natural resources can also be used to make many things that make our lives more comfortable or enjoyable. In fact, all of the goods we use today begin with one or more natural resources from the Earth. We use fertile soil to grow crops, and we use the land to raise livestock for food. We chop wood from forests to make paper products, furniture, and lumber for houses. We mine minerals and metals from the Earth to use in many industries.

Our lives are closely connected to the Earth's natural resources. It is important to understand what natural resources are available, how to protect them, and how to use them wisely.

- Match each of the following questions to whether they are best answered by paragraph 1, 2, 3, or 4 of the text.
 - Why should I learn about natural resources?
 - How do natural resources support life?
 - Where do products come from?
 - What are natural resources?
- Determine whether each statement is true (T) or false (F). Rewrite each false statement to be true.
 - Natural resources are man-made.
 - Without natural resources, life on Earth would not exist.
 - Forest resources are useful for building shelter.
 - Natural resources are only nonliving things.

Brain POP

Date: _____
Name: _____
Class: _____

1 Why are trees considered natural resources?

- They provide valuable shade that no other resource can provide.
- Humans use them to produce paper, lumber, fuel, and other products.
- They are an important source of firewood for campfires.
- They grow back after they're cut down.

58.8

6 What can you conclude from the fact that lots of research is being done into wind and solar energy?

- In the future, these technologies may be far more sophisticated and efficient.
- We don't really know how solar and wind energy can be used to produce electricity.
- These technologies are too complicated to be widely used.
- These technologies will someday be more expensive.

2 Which of these is a factual statement about natural resources?

- Someday, humans will run out of fossil fuels.
- Using wind energy will make us feel better about ourselves.
- As soon as they're available, everyone should drive solar-powered cars.
- Fuel cells are the most important technology we've ever developed.

66.5

3 Which is the most likely reason why soil erosion can be a major problem?

- Soil contains expensive minerals.
- A region's agriculture can be destroyed if the soil erodes.
- Soil is a non-renewable resource.
- Dangerous, radioactive elements exist under the soil.

49.8

4 Why isn't glass considered a natural resource?

- It isn't used by humans.
- It's non-renewable.
- It's not found in nature.
- It has a limited number of uses.

65

5 What is the key difference between renewable and non-renewable resources?

- All non-renewable resources pollute the environment; renewable resources don't.
- Non-renewable resources must be refined before humans can use them; renewable resources don't.
- Non-renewable resources exist in unlimited quantities; renewable resources don't.
- Non-renewable resources exist in limited quantities; renewable resources don't.

63.6

9 How does recycling conserve natural resources?

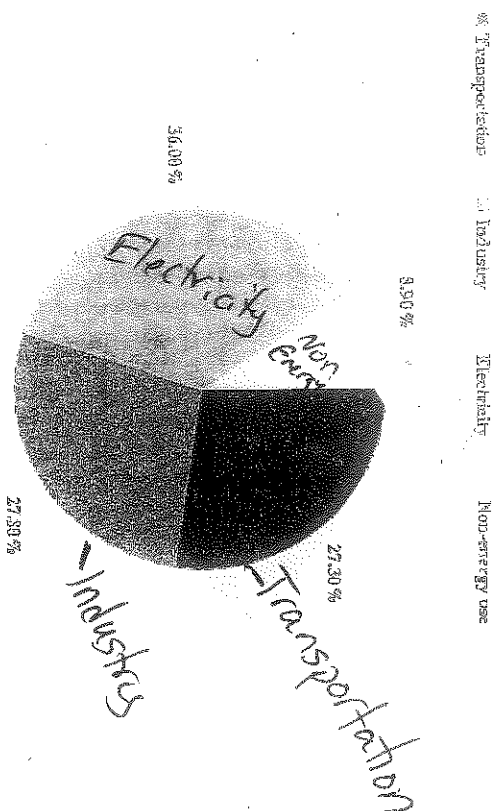
- It allows us to re-use products instead of manufacturing new ones.
- It prevents garbage from being burned.
- It saves on the amount of fuel used by garbage trucks.
- It saves on the amount of plastic used to manufacture garbage bags.

71.3

10 Why is wind energy considered a renewable resource?

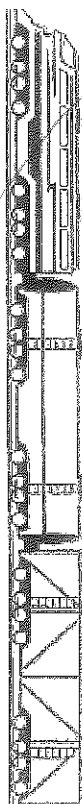
- It can be found in a variety of places.
- It's completely non-polluting.
- The wind can blow incredibly fast.
- It's unlikely that we'll run out of wind.

HOW DOES THE WORLD USE THE TOTAL ENERGY SUPPLY?



Questions:

1. What percentage of energy is used for transportation? 27.30%
2. How much more energy is used as electricity than for transportation? 8.7%
3. If 10,000 kWh of energy was used one day, about how much of it would be used for transportation? 2730 kWh (Remember to include units!)
4. How much of our energy is used for transportation, energy and electricity combined? 63.6%
5. How much more energy is used for electricity than for industry? 8.2%

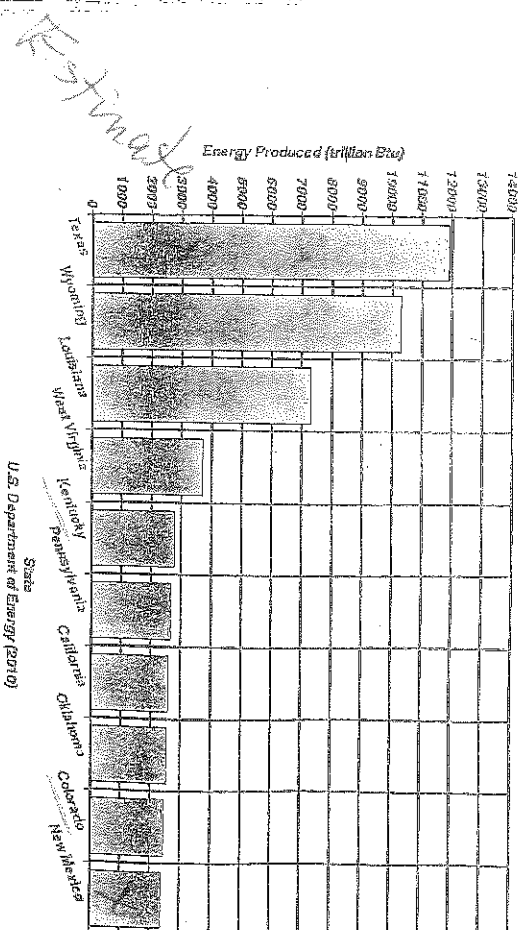


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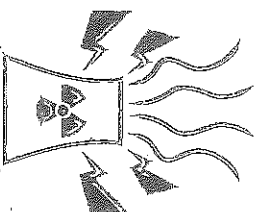
$$\begin{array}{r}
 10,000 \\
 \times 273 \\
 \hline
 27300 \\
 273000 \\
 \hline
 2730000 \\
 - 273000 \\
 \hline
 2457000
 \end{array}$$

TOP ENERGY PRODUCTION BY STATE IN 2009



Questions:

1. Which state produced the most energy in 2009? Texas
2. Which state produced approximately 10,300 trillion Btu of energy in 2009? Wyoming
3. Approximately how much more energy was produced by Texas than New Mexico in 2009? 11,500 Btu (Remember to include units!)
4. Approximately how much less energy was produced by Louisiana than Wyoming in 2009? 2,000 Btu (Remember to include units!)
5. Of the states represented on this graph, which state produced the least amount of energy in 2009? New Mexico
6. Which state produced more energy in 2009, Kentucky or Colorado? Kentucky



30

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$$\begin{array}{r}
 12000 \text{ Btu} \\
 - 1000 \text{ Btu} \\
 \hline
 11000 \text{ Btu}
 \end{array}$$